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NEW ENGLAND

Journal of Dentistry.

VOL. II. MAY, 1883. No. 5.

ORIGINAL COMMUNICATIONS.

THE TREATMENT OF PYORRHŒA ALVELORIS, OR INFECTIOUS ALVEOLITIS.

BY ADOLPH WITZEL, ESSEN, GERMANY.

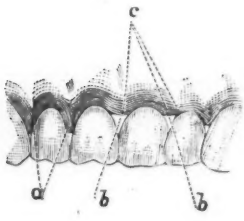
[A paper read before the Annual Meeting of the Dental Association of Germany, at Heidelberg, August 1, 1881, and published in the Vierteljahrsschrift fur Zahnhielkunde.]

Gentlemen: The subject of my paper is a disease of the dental sockets, which it has been customary to name alveolar blennorrhœa. Hitherto so little has been positively known of the essential character of this peculiar affection, that it will surprise no one that we are in the dark both as to its causes and its treatment.

If we follow, step by step, the clinical phenomena of the disease, which, so far, I have only observed in well-developed jaws with sound teeth, we notice the following essential appearances: At some spot in the row of permanent teeth, one of the processes of gum, which is normally found as firm tissue filling up the space between the necks of the teeth, is seen to be somewhat retracted and everted, as it were. If the affection, which is a serious one, whatever variety of tooth it attacks, begins between two incisors, we find, on examina-

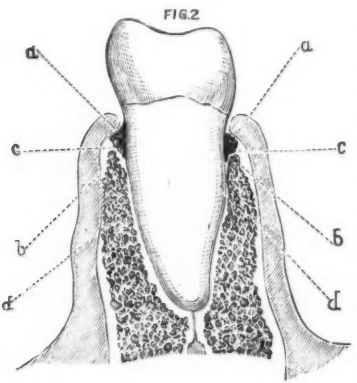
tion of the mouth, an appearance somewhat like that depicted in Fig. 1.

Fig. 1.



The space between the central and lateral incisor is filled by a healthy process of gum tissue, *a;* at *b*, on the other hand, we see the first sign of commencing alveolitis, namely, disappearance of the process of gum, and in consequence a free space between the necks of the teeth. This disappearance of the process of gum between the teeth is the first pathognomonic symptom of the disease under discussion.

The gum itself at first presents no inflammatory swelling; its color is normal, and all that we find is a looseness of the ring of gum which normally surrounds the neck of the tooth like a sphincter. If, now, we pass a fine excavator under the everted margin of gum, we find, with few exceptions, on the approximal surfaces of the necks of the teeth at *c. c.*, Fig, 1, small acuminate deposits of concretion of a greenish-black color, by which the adjacent margin of gum has been thrown into a state of chronic inflammation. Later on we find the gum somewhat lifted up from the neck of the tooth by these deposits, so as to form a sort *of pocket, from which a dirty purulent secretion exudes on pressure* (Pyorrhœa). On probing this pocket, we find the border of alveolus between the necks of the teeth, rough and denuded of periosteum, and from an examination of jaws which have been macerated, it is evident that even at this early stage of alveolitis, the affected alveolar border has already lost its covering lamella, and has become quite porous.



In Fig. 2 I have shown these appearances diagrammatically. At *a a* we see the rough concretions on the neck of the tooth, which have been deposited close to the alveolar border, and have separated the gum from the neck of the tooth. In the pocket thus formed (*c c*) the products of decomposition collect, the periosteum of the alveolar border is destroyed, and the edges of the latter (*b b*) undergo necrosis.

It is further to be observed, that the sub-mucous connection between the gum and the periosteum of the alveolus is also, as a rule, destroyed as far as *d d*, so that the socket becomes necrosed on both sides at once.

At the very commencement of the disease, the teeth belonging to the sockets affected by it, appear *somewhat loosened;* and the further the process advances, the looser they become, until they are at length completely extruded by the granulation tissue which grows from the enlarged cancelli of the diseased portions of bone.

During this process, which mostly runs a chronic course, the *periosteum of the root of the tooth* becomes disintegrated from the neck of the tooth to its very apex; but, like the gum itself, it takes but little part in the formation of pus, usually so copiously poured out in this disease. The *source* of the *pus* is rather to be looked for in the medullary substance of the ring of bone surrounding the neck of the tooth; for if the alveolus be examined at the moment of extraction, and before it has become filled with blood, the diseased portion of bone will be seen covered with pus and soft granulations. I have frequently found this soft connective-tissue, neoplasm, very abundantly developed on the inter-alveolar walls of the upper and lower molars, where it occurs in the form of lobules on the more or less disintegrated portions of alveolus separating the fangs. It is also sometimes found after extraction, on the tooth, between its roots.

. . . . . .

It is not until the process has penetrated to the bottom of the alveolus, and the tooth is quite loose, that we find this granulation tissue also occupying the base of the socket. In this case, the growth of granulations from the medullary tissue at the root of the tooth leads to a breaking down of the cementum—as the result of which, the apex of the tooth is seen to be quite rough. I have not yet observed the total disintegration of the layer of cementum which Magitot has described as characteristic of the disease. As a rule, the patients will not allow you to extract the affected teeth until they have become quite loose; but if you should ever chance to extract a tooth at the early stage of the disease, you will find the soft disorganization of the dental periosteum confined to the neck of the tooth. The remaining portions of it are velvet-like and loosened, and present a brilliant vascular injection, increasing towards the root, and associated with small nodules and lobular granulations. I have not yet examined these growths for nests of micrococci, but I have no doubt that they are to

be found, not only in the granulations, but also in the infected, medullary tissue of the inter-alveolar partition. In the pus which may be obtained from the affected alveoli by pressing the gum we observe, under the microscope, a countless number of micrococci and bacteria, which doubtless find, in the pockets of gum tissue, *the most favorable conditions for their continuous development.* The pulp appears to me to be involved in this affection only secondarily. The earliest changes in it bear some resemblance to the net-like atrophy described by Wedl. At first, the larger vessels are seen to be congested, and there are deposits of lime salts in the pulp tissue. It is not until later, when the disorganization of the alveolus has reached the end of the fang, that the pulp of the *now entirely loosened tooth* breaks down into a fetid, fluid mass. In single cases, however, I have found pulps inflamed and gangrenous, even before the teeth had become fully loosened. This has chiefly occurred in the case of younger patients, in whom the disease ran an acute, and not a chronic course; the teeth became loose a few weeks after they were first attacked; they grew sensitive on mastication and to heat, and generally had to be extracted from the affected sockets after they had caused the patient several sleepless nights.*

I was very much struck, in some of these cases, with the fearful pains which the patients complained of, as well as with the phenomena with which the suffering was associated. I have repeatedly observed high fever, rigors, hard, phlegmonous swelling of the side of the face and sudden formation of abscess under the gum. When teeth are attacked in this way, their periosteum becomes in great part disintegrated and covered by a fetid ichor, which continues to pour itself out of the abscess after the extraction of the teeth, which, I may add, are usually free from caries.†

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*The above clinical observation led me, in a few cases of alveolitis, to try opening the pulp cavity, disinfecting it, and subsequently filling it antiseptically. The experiment was not invariably successful; still, a certain number of teeth treated in this way have, for years, lost all sensitiveness on mastication, and have not, apparently, become looser. In one case a lower molar, the pulp cavity of which I opened successfully five year ago, is still firm, while all the other teeth have been either extracted, or are more or less loose in their sockets. But we shall not be able to come to any conclusion as to whether this treatment is advisable or not, till more numerous experiments have been made in respect to the opening up and antiseptic filling of the roots. I consider that perforation of the pulp is not indicated in the case of a firmly-planted tooth until gangrene of the pulp is proved with certainty to exist.

†In the treatment of infectious alveolitis, certain precautions seem to me to be called for; for not only can the process be conveyed from alveolus to alveolus by infected instruments which have been used for the purpose of cleansing the pockets of gum tissue, but, as will be

The causes of this affection, the first symptoms of which are invariably overlooked by the patient, and were until lately little regarded by the dentist, are still more or less unknown. Neglect of the teeth encourages it, and also, more particularly, the deposits of concretion on the necks of the teeth, by means of which the gum is lifted up from them. The usual deposits of tartar, with which we are all familiar, are firmly attached to the neck of the tooth, upon the margin of the gum, which is gradually mechanically pressed down from the neck of the tooth towards the fang, by the gradual increase of the chalky concretion; the alveolus and its covering disappear, but simply from atrophy, through pressure. But in this process, which is one of very slow progress, the connection between the gum and the periosteum of the jaw and the alveoli remains unbroken; it is a localized process, as may be observed in those cases in which it so frequently occurs in conneetion with incrustations of tartar on the lower incisors.

The greenish-black concretions, on the other hand, always form on the neck of the tooth *beneath* the gum, close to the inter-alveolar wall, and, by their gradual growth, destroy the connection of the gum with the periosteum of the jaw and teeth.

I have hitherto been unable to find any definite point of contact between alveolitis and constitutional affections; it appears to me, however, that prolonged residence in damp dwellings favors its occurrence. Other causes are to be found in the various affections of the gum, which lead to a collection of irritating substances between the gum and neck of the teeth. Among the sailors of Heligoland, not one of whom has probably ever used a tooth-brush, almost two-thirds lose their teeth, at a very early age, from alveolar pyorrhœa, which, however, in this case, is always associated with spongy softening of the gum.

---

seen from the following case, the putrefactive products of the alveoli are not without danger to the operator, if they come in contact with such slight wounds as the dentist is liable to have on his fingers. Some years ago M. Montegel, a dentist of Coire, treated a lady with acute alveolar pyorrhœa. In the course of examining and pressing the alveoli, he infected a small skin wound near the root of the nail of the index finger. Twenty-four hours later his hand swelled up considerably. On the third day, the lymphatics of his arm, as far as the armpit, were severely affected, and on the sixth day a deep-seated abscess appeared in the neighborhood of the wrist. The whole course which this affection of the hand ran, clearly proved infection of the wound by the alveolar secretion. M. Van Geldern has also recorded a similar case. One ought, therefore, before he examines a patient with alveolar pyorrhœa, to cleanse the margins of the gums, which are usually covered with matter, with an alcoholic solution of soap, and after the treatment to use the same to the instruments and ends of the fingers.

As a general rule, then, it may be accepted that any affection of the gum that arises from want of cleanliness, may in the end give rise to a considerable softening and loosening of the gum from the neck of the tooth, and so prove an indirect factor in the causation of alveolar pyorrhœa. Nevertheless, it is necessary to insist upon the different course run by simply affections of the gum, as compared with that of infectious alveolitis. Simply gingivitis and ulcerative stomatitis can both be easily and thoroughly cured, as soon as the necks of the teeth are cleansed of mucus and tartar, the ulcerous edges of gum cauterized with chloride of zinc or carbolic acid, and the teeth and gum carefully cleansed by the patient with a soft brush and carbolized spirit. In these cases, teeth often become considerably loosened, as we have sometimes seen in cases of ulcerative stomatitis, without being lost; but here, as in the case of all affections of the gum, the loosening is invariably a secondary result, and as soon as the gum grows healthy, the teeth again become fast in their sockets.

Now, if the disease we are discussing were a simple blennorrhœa of the gum, it could, like other gingival affections, be easily cured without loss of the teeth. This, however, as I have learnt from my own experience, is not the case, and on this ground it is necessary to draw a distinction between the disease of the alveoli, which is the subject of this paper and diseases of the gum, though I am free to admit that neglect to cleanse the gum often enough gives rise to the former affection. *We have, in fact, to deal neither with an ulceration of the gum, nor with a primary inflammation of the dental periosteum, but with a molecular necrosis of the alveoli, or caries of the dental sockets, produced by septic irritation of the medulla of the bone.*

The affection is not to be confounded with senile atrophy of the alveoli. On the contrary, it occurs most frequently in strong and healthy persons in middle life, and, according to my observations, seldom, I might say almost never, attacks carious teeth with diseased pulps. Senile atrophy consists in a steady disappearance of the socket, by means of which the fangs of the teeth are gradually laid bare; there is no necrosis of the alveolar margin, and the gum remains firmly attached to the latter and to the periosteum of the jaw. In alveolar pyorrhœa, on the other hand, there is, as already mentioned, a loosening of the gum from the outer border of the alveolus, by means of which the periosteum of the latter becomes exposed and destroyed by colonies of micrococci, while the margin of the bone, thus robbed of its covering, is infected, and finally becomes softened by caries.

Alveolitis is a disease which—exactly as we might expect from the cause that gives rise to it—attacks first, by preference, the *strong inter-alveolar partition*, and it is a distinct error of observation to maintain that it chiefly affects the labial lamella of the alveoli, or that it is more frequently found in connection with teeth with a single fang than with the molars or bicuspids. I have often seen the affection occurring in young persons, between the ages of twenty-five and thirty years, where senile atrophy of the alveolar process was certainly quite out of the question, and I have seen it attacking the most different kinds of teeth. I have observed its commencement, both on the upper and lower wisdom teeth, and also on the bicuspids and incisors; but it invariably happened that the starting-point of the disease was in *one* inter-alveolar partition.

An affection resembling alveolar pyorrhœa is observed in the eruption of the lower wisdom teeth, if they happen to be dislocated backwards, and remain beneath the gum for a prolonged period.

In this case, also, putrefactive products collect between the neck of the tooth and the gum covering it; and the mechanical injury to which the swollen mucous fold at the angle of the jaw is exposed, together with the septic irritant which is conducted from the pocket of the gum to the alveolar border, lead to those violent inflammations of the angle of the jaw which we know so well in practice. The cause of this inflammation is thus similar to that which produces alveolar pyorrhœa, but the course of the two affections is utterly different. If the wisdom tooth is extracted before it has led to extensive inflammation of the jaw-bone, the affected alveolus heals up, and the loosened neighboring tooth, the socket of which has been more or less involved in the inflammation and undergone some degree of softening, again becomes fast; and that even though the inflammation has run a chronic course, and the misplaced tooth is not removed for years.

In these cases, if we examine the enlarged alveolus and the periosteum of the root of the wisdom tooth, we find almost the identical changes which are observed in teeth with commencing alveolar pyorrhœa; and yet the inflammatory process that occurs in the case of eruption of a wisdom tooth remains confined to the one alveolus, and the adjacent tooth continues firm, while infectious alveolitis speedily attacks the contiguous alveoli, and causes the loss of the teeth they contain.

I have dwelt on this comparison with the view of showing that in

alveolar pyorrhœa there is a certain something co-operating—either a predisposition on the part of the alveoli, or, as to me appears more probable, a virus, of the nature of which we are as yet ignorant. It is true that I have not hitherto made any attempts to convey the affection from one individual to another, by transferring the pus from a diseased alveolus to a healthy one. The fact, however, that it usually begins in the neighborhood of one tooth, and never attacks a whole row of teeth at once, and that its extension is best prevented either by treating the diseased alveolus antiseptically, as soon as possible, or by extracting the tooth, proves that we have to deal with a local contagion.

Before I pass on to describe my treatment of this affection, I must beg of you not to infer that my method is a perfect one, or one that is reliable in every case. It is, indeed, the custom to regard infectious alveolitis as incurable—a view which finds its justification in the fact that the patients do not, as a rule, seek our aid until their teeth have become very loose, and have been rendered painful by the pressure of mastication. After what I have already said, I need go into no further explanation of the reasons why such teeth can never be saved by conservative treatment. It is true that, by suitable treatment, such as cleansing and disinfecting the pocket of gum, we can procure alleviation, but we can never obtain a permanent cure, and make the teeth again firm in their sockets, if the latter have been destroyed to the extent of more than a half.

In general, my opinion is that the treatment of the affection should be directed less to the preservation of teeth which are already loose, than to using every possible precaution to prevent the putrefactive secretion of the affected alveoli from infecting those that are still healthy.

If we are to strive to cure the affection, the first and most important step to be taken is to remove every tooth which is much loosened at the very commencement of the treatment. For all attempts to preserve a loosened tooth, the socket of which has been destroyed by the carious process to the extent of more than one-half, will prove useless. It is of special importance, in the case of younger subjects, not to delay, any longer than possible, the extraction of bicuspids and molars which have been attacked by alveolar pyorrhœa; for the later such patients submit to extraction, the smaller their chance of preserving the dental organs. We ought, therefore, to examine how far the alveolus still surrounds the neck of the tooth. In the incisors it

is, as a rule, the labial and mesial portion of the socket which is first destroyed, and it is astonishing how far we sometimes have to pass the sound, between the gum and the tooth, before we feel the rough border of the alveolus. In the case of upper and lower molars, if the sound penetrates between the forked union of their roots, there is little prospect of saving them; for it is precisely the stoutest alveolar partition which, as consisting almost exclusively of cancellous tissue, and being therefore most richly provided with medullary tissue, become most rapidly disintegrated by the inflammatory process.

In a lady of about thirty-five years of age, alveolar pyorrhœa began in the wisdom teeth of both jaws. In spite of my representation, the patient could not make up her mind to have the teeth at once removed, but kept them in their diseased sockets until the pain experienced in mastication at length compelled her to have them extracted. In the meantime, however, the sockets of the second molars had also become more or less infected, so that soon one of these, too, had to be removed. After this experience, the patient consented to an early extraction of the three second molars still remaining, the sockets of which had already become somewhat expanded, but which had not themselves as yet grown either loose or painful. The result of this operation was that the process was arrested in the alveoli of both jaws, and the first molars, which would otherwise to a certainty have fallen a prey to the affection, still remain sound, after a lapse of four years. The teeth adjacent to the affected ones will naturally be more or less loose, but as every extraction is followed by cicatrization of the alveolus and thickening of the surrounding bone, this operation must necessarily have the effect of again, more or less firmly, securing the adjacent tooth. If now, according to my view, the alveoli of the teeth, which are only moderately loosened, are treated antiseptically, we are entitled to expect a cure of the evil so soon as ever the faulty neighbor has been removed.*

*The question whether it is advisable in older patients affected by alveola pyorrhœa to remove teeth the sockets of which are partially affected, I am led by my experience to answer in the affirmative; for such loose teeth are only of very doubtful use to their possessor, and at the same time they prevent him from properly masticating with the teeth which are still sound. It is true that in the case of the incisors we ought, for æsthetic reasons, to delay extraction as long as possible, and to attempt to heal the alveoli; but if we do not quickly succeed, we ought, even in this case, to extract without delay, and after removal of the useless teeth to make a partial denture, in order that the patient may become used to the wearing of artificial teeth before he has lost all his natural ones. The teeth which still remain unaffected by alveolar pyorrhœa render this easy for him, and if in time these weak supports are lost—a common event in older subjects—the patients will have already become accustomed to a plate, and will more easily get over the discomfort of a complete set, resting, as it will do, on a jaw the alveolar process of which has entirely disappeared.

When, after careful examination of all the teeth, I have extracted those the sockets of which have been more than half destroyed, I proceed to cleanse the remainder from all concretions situated below the gum. The most thorough cleansing of all the necks of the teeth is necessary as a preliminary, if the subsequent antiseptic treatment of the alveoli is to be successful.

For the disinfection of the diseased alveoli, as well as for the general treatment of the affection, I regard a small glass syringe with fine gold canules as indispensable. For it is only by using such an instrument that we can bring the solution of carbolic acid and chloride of zinc, which I recommend in this treatment, into immediate contact with the pockets of gum and the diseased portion of the alveoli.

. . . . . .

The syringe comes into play in the treatment of alveola pyorrhœa as soon as ever the necks of the teeth have been thoroughly freed from mucus and deposits of concretion, and it is used in the following manner: First, one lays a piece of blotting-paper (an excellent preparation is Parker's paper-fiber lint) on both sides of the alveolar border, in order to absorb the caustic solution as it flows out of the pocket of gum. Then having filled the syringe with the disinfectant, you introduce the canula, as far as possible, between the gum and the tooth up to the border of the diseased alveolus. If you are using Farrar's drop syringe, you next give one or two turns of the screw, at the same time carrying the point of the canula somewhat around the neck of the tooth. By this means, the whole of the pocket of gum and the diseased alveolus are thoroughly bathed in the caustic fluid.

For disinfecting pockets of gum, in connection with the incisors and bicuspids, and, as a general rule, in the case of all teeth in the upper jaw, I employ, as far as possible, the straight canula, reserving the curved canula for the teeth of the lower jaw. In all cases, the point of the canula is to be well introduced at both the mesial and distal side of the neck of the tooth, in order to disinfect the interalveolar pariotes which form the seat of the disease.

This mode of applying caustics is not, as a rule, painful to the patient. The only necessary precaution is to see that the portions of solutions that flow out from the pocket of gum do not escape into the mouth, but are taken up by the blotting-paper. In cases of alveolar pyorrhœa, associated with pain, two drops of tincture of iodine and aconite may be injected into the recess in the gum before the application of the escharotic—a much more effectual way of applying the tincture than simply painting it on the gum.

It will be the surgeon's duty, whenever possible, to carry out this disinfecting process three times in the first week. But even this rational treatment will remain without result if he cannot persuade his patients to promote the cure by cleaning the teeth and gums by means of a soft brush, tooth-powder, and carbolized spirit. And even here the result will not depend upon the agents, whose composition I give below,* so much as on the way in which they are applied. We have all in times past used iodine, carbolic acid, chloride of zinc, nitrate of silver, &c., in the treatment of alveolar pyorrhœa, without any very great results. This fact is easily explained, for hitherto, in our use of these applications, we have never been able to bring the medicament to act directly on the seat of the disease. When we have attempted to convey nitrate of silver in powder, or any other substance into the alveoli by means of a piece of wood, it has usually happened that the agent has been rubbed off the wood by the margin of the gum, with the result that the action of the escharotic has been confined to the latter, while the contagion has been quietly left to continue its work in the alveolus. The result is quite different when we make use of this syringe which, I may add has, in my hands, also proved extremely valuable in the antiseptic treatment of the root canals—for the application of the antiseptic to the alveolus, for which we intend it. This method of treatment, although I recommend in it the employment of well-known agents, is so different from our old system, that the two cannot be compared for a moment, and I think that my experience up to the present time entitles me to express the hope that by the use of the alveolar drop-syringe, we shall quite certainly be able to contend against alveolar pyorrhœa with more success than hitherto.

In conclusion, I will show you, first, the model of a jaw, from which, after fruitless treatment of the disease in question by means of the old method without the syringe, I had to extract the teeth that are miss-

---

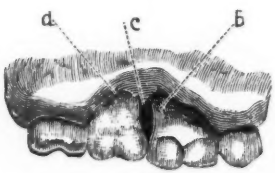
* ℞ Acid, Carbolic, 5.0 ;
Spir. Vini Rectif., 400.0 ;
Aq. Menthæ Pip. 100.0 ;
Ol. Anisi 1 0, Ol. Cinnamon, acut., 0.5 ;
M.—For brushing the gum in alveolar pyorrhœa.

℞ Potassii Iodidi, 5.0 ;
Acid, Carbolic, Zinci Chlorid., Alcoh. Absolut., a a, 25.0 ;
Acid, Hydrochl., 2.0 ;
Aq. Destill., 10.0 ;
Ol. Menthæ Pip., 5.0.
Misce et filtra. For syringing out the pockets of gum in alveolar pyorrhœa.

ing, though quite sound. The patient, who was at the time a man of not more than forty years old, with strong teeth, now wears an artificial denture. In the case from which the other impressions were taken, the jaw and teeth alike were strong and healthy. About a year ago, commencing alveolitis appeared at the first upper molar on both sides, and at the second lower molar on the left side. These three teeth, which had already become very loose, were extracted, and the alveoli of the neighboring teeth, which were less involved in the septic process, were repeatedly injected with the solution of iodine, phenol, and zinc chloride, alternately with simple tincture of iodine, which we know to be a very powerful antiseptic. The patient, who had previously somewhat neglected his dental toilet, now thoroughly brushes his teeth and gums, several times a day, with a soft brush and carbolized spirit. He comes to me every eight weeks, to have the alveoli, previously involved in the disease, injected, and we are both rejoiced to see the continued healthiness of his other teeth.

In another case, a man aged twenty-four, the disease ran a very peculiar course. At the age of twenty-two, the lower central incisor, which was somewhat prominent, and the left first lower molar were attacked by the disease, and shortly after extracted, the alveoli of the adjacent teeth remaining healthy. Two years later, the affection showed itself in the alveoli of the upper jaw, and the patient himself removed the right first bicuspid, which had become very loose. Suppuration from the alveoli of the left bicuspid induced him to again seek professional aid.* On examination, it was found that the alveoli of the bicuspid, and first molar on the left side were entirely disintegrated, as also that of the first right molar. Here the process had completely destroyed the septum (Fig. 9) between the first and second molar, and had partially destroyed the facial lamella of each tooth (a b). Fig. 9 shows this portion of the alveolar process; it represents an appearance which may be looked upon as characteristic, as regards the extension of alveolitis in the upper molars.

FIG. 9.



The prognosis in this case was an

*The young man is now quite cured. He says that at the age of eighteen he contracted syphilis, but there is no other evidence to confirm the statement. In another man, aged thirty-six, alveolar pyorrhœa made its appearance in a similar manner, in the first molars of the upper jaw, four years after recovery from syphilis. The teeth were at once extracted and the evil removed, for the alveoli of the remaining teeth are now, after a lapse of two years, quite healthy.

unfavorable one, for not only were the alveoli of the teeth figured above either partially or entirely destroyed, but there was a copious flow of pus on pressing the gum over the canines, though these teeth were still firm. The alveoli of the lower jaw were healthy, the only sign of disease consisting in an eversion of the papilla of gum between the first and second molars on the right side. In this case, there were no concretions on the necks of the teeth, but the roots of the loosened teeth were thickly set with small nodules of deposit of the size of a millet seed.

In the treatment of this case, the first step was to extract the teeth which occupied the necrosed alveoli of the upper jaw, in order to put a stop, once for all, to the injurious discharge of pus; the next thing was to protect the remaining teeth, as far as possible, and to make them once more capable of use. After extraction, I found on the septa, between the alveoli, lobular granulations, which I removed as thoroughly as possible with a sharp gouge (Loffel); and I next proceeded to excise, with the same instrument, the necrosed remains of the alveoli on their facial aspect.

The canines were still firm, though their alveoli were diseased, and an attempt was made to treat them conservatively. The treatment consisted in syringing out the alveoli with a solution of chloride of zinc and phenol, and in scraping the carious alveolar border with a sharp excavator.

This scraping away of the soft alveolar border seems to me worthy of recommendation, in cases where we wish to try and save such teeth. The procedure, however, is only advisable in the case of teeth with single fangs, especially the canines, which, from the length of their roots, can afford to lose a considerable portion of their sockets.

There is one point which I must not omit. In the discussion which followed my paper at the Heidelberg meeting, among other suggestions it was proposed to cleanse the recess of gum by means of a stout camel's-hair brush. I tried this procedure on this patient. I found, however, that it was exceedingly difficult, nay, it was almost impossible, to introduce the brush between the gum and the neck of the teeth. At length I certainly did succeed in removing fairly completely the pus from the pocket of gum and in applying the antiseptic between the gum and the neck of the tooth. But this rather complicated procedure did not appear to me to furnish any satisfactory result. On the other hand, when the caustic was introduced deep into the pocket of gum by means of the syringe, the effect was most

striking. While pus could be obtained on pressing over the left canine, as much after brushing it out as before, on the other side, two injections sufficed to arrest the suppuration. Whoever, therefore, wishes to treat alveolar pyorrhœa in suitable cases, let him make use of a fine syringe and repeatedly cleanse and disinfect the pockets of gum with it. The patient cannot, I have become convinced, himself apply the injection.

The treatment of this patient is not completed. I believe, however, that I shall succeed in curing the alveoli of the canines. It is questionable whether the second molars, the internal buccal fangs of which are partially laid bare, can be preserved; the isolated bicuspids, the alveolar margins of which I have also superficially scraped, will again become firmer on the cicatrization of the adjacent alveoli, so it will perhaps be possible to retain them. My more recent experience teaches me to regard this affection as curable in many cases—especially in younger subjects—if practitioners will only give up useless attempts to preserve in their infected and necrosed sockets teeth which are already loose.

The more assiduously the patient assists us by brushing his teeth, two or three times a day, with a soft brush and carbolized spirit, the more favorable will be the results of our treatment. You must, therefore, impress upon the patient, as soon as he comes into your hands, that your efforts will be without avail, if he does not persevere in cleaning his teeth in the manner described, and come to you for the six weeks, two or three times a week, to have his alveoli disinfected.

Gentlemen: I now come to the conclusion of my paper, but I do not regard the subject as in any way completed or exhausted. Perhaps, however, we shall more easily succeed when our researches are all directed in the path I have indicated, in determining the nature of a disease which ever confines its destructive influence to the soundest teeth. *The most important part of this treatment falls under the head of prophylaxis*, for, according to my view, which is also shared by Riggs and others, it is deficient care of the teeth and gums that is the chief cause of this local lesion which, once present, endangers every one of the teeth. The dental surgeon must bear that in mind, and in the case of younger patients, who present deposits of concretion under the gums, must make every effort to carefully remove them, twice a year, and to persuade the patients to undertake that rational care of the teeth and gums which is so frequently neglected. People are in the habit of recommending and using the

hardest brushes and strong tooth powders to scour the teeth, but they, at the same time, carefully avoid the merest touching of the gums. The use of hard tooth brushes, however, is a bad habit, against which we cannot inveigh too strongly, and it is the duty of every dentist to warn his patients that a simple tooth powder of chalk and a little soap is the best to use, but that brushing the margin of the gum twice a day with a soft brush and spirit is absolutely necessary; for it is only by the use of spirit, that the mucus which collects on the borders of the gums and between the necks of the teeth can be removed. It is not enough to pour twenty or thirty drops of the solution into a glass of water and rinse the mouth, or brush the gums with it. The best way is to half fill a small glass with the solution, and to dip the brush into it several times at each cleaning.

Possibly you may look upon this last observation as superfluous. I am of the opinion, however, that the care of the gum is still very frequently left altogether out of consideration by many otherwise capable dentists. They will mallet gold into the very smallest fissures in molars, the sockets of which are already showing traces of alveolar pyorrhœa, in order to prevent the extension of caries in teeth which would last just as long without such fillings; but they deny their patients the most important service, because they neglect to clean the teeth and treat the pockets of gum. And yet the dentist can preserve more sets of teeth by carefully cleansing them, and by rational advice as to the treatment of the gums, than by any other operation.

Attention to the gums must be more strongly insisted on; without it we can expect no success whatever in our treatment of the disease under consideration. The advantage, however, which patients derive from carefully cleansing their teeth of concretions of tartar, is, as is generally believed, far greater; and the more the dentist directs his efforts in this sense, the more good will he do.

In conclusion, gentlemen, it is not in the preservation of useless teeth and the filling of decaying stumps that the secret of conservative dentistry is to be sought, but in the removal of all diseased teeth which are not absolutely necessary for good articulation, and in rational attention to the gums.

EDITORIAL.

Again the Legislature of Massachusetts has rejected a Bill regulating the practice of dentistry within its borders. The passage of a very mild Bill was secured in the Senate, but the House refused to concur on its final stage through that body. Thus, for another year, at least, Massachusetts must remain a sewer for dental incompetents, into which, by the wiser action of some twenty other States, they are directed.

Very strange laws about dentistry seem to be rampant in Vienna, Austria. By such a law, dentists are allowed to make artificial dentures and teeth, but are not allowed to take impressions or to prepare the mouth. The law also forbids a dentist to call himself doctor; they have to take to all kinds of devices to make the public believe that they are a doctor. One of the most ingenious ones is the following:

A dentist edited a small sheet called the Dental Doctor. He made a big sign on his door, reading, "JOHN SMITH, Editor of the DENTAL DOCTOR." Everything was printed in small type except John Smith and Dental Doctor, and the unwily public was taken in; but the authorities do not encourage enterprise, and so the doctor had to pull down his shingle.

ABOUT HYDROGEN PEROXIDE.

Dr. Herman Krätzen, in Leipsic, gives the following information about this powerful chemical. The H_2O_2 has taken place on the toilet table beside sozodont and thymol mouth washes. He prefers H_2O_2 for cleaning teeth to all tooth powders and mouth washes. If you put a little fine chalk on the tooth brush and pour over it a little H_2O_2, it will not only render the teeth brilliantly white, but it removes all injurious deposits on them. To apply once or twice a week is sufficient. If one adds to diluted H_2O_2, which one intends to use as a washing liquid, a couple of drops of aqua ammonia, one may see wherever this mixture touches the skin the small bubbles of oxygen which are disengaged, while the upper rough surface of the skin is transformed into a white soapy mass. As the H_2O_2 destroys nothing but the dead particles, it causes the healthy skin to appear, which quickly becomes strong and capable of resisting external influences.

THE UNION MEETING AT SPRINGFIELD.

The announcement in our last number of the Journal that the Massachusetts and the Connecticut Valley Dental Societies were to hold a union meeting in Springfield, Mass., June 6th, 7th and 8th, has created a wide and lively interest. We have letters from many sources promising attendance and participation. Some of the most prominent men in the profession are to take an active part in the proceedings, and our remark that this is to be one of the most important meetings ever held is to be verified.

The Executive Committee of the two societies are actively engaged in completing arrangements, and the full programme will be issued early in May. We are authorized to state that the following gentlemen will be present and read papers: Dr. W. C. Barrett, Buffalo, N. Y.; Dr. W. G. A. Bonwill, Philadelphia, Pa.; Dr. R. R. Andrews, Cambridge, Mass.; Drs. T. H. Chandler (probably) and D. M. Clapp, Boston, Mass., and Prof. Chas. Mayr, Springfield, Mass. Dr. Barrett will speak on "The experiments, observations and conclusions of Dr. W. D. Miller, of Berlin, Germany, concerning Dental Caries," to be illustrated by drawings and diagrams of his microscopical work. Drs. W. G. A. Bonwill; H. W. F. Buttner, of New York; H. A. Baker, of Boston, and (probably) E. P. Brown, of New York, will illustrate, by clinics, improved methods of "setting artificial crowns." These clinics will be a very important and practical feature of the meeting, and ample time will be afforded for the purpose. Prof. Chandler's paper will probably be on "Amalgams." The subjects of other papers are not yet announced.

Special rates at the various hotels have been secured, and an attempt is to be made to secure a reduction, if not free return tickets, from the various railroads, to members attending the meeting. The meetings will be held in Gill's Hall, corner of Main and Bridge streets. The profession are cordially invited to attend, whether members of either society or not.

Besides the parties above named, several chairmen of Sections of the Connecticut Valley Society will have reports to offer, and members of the Massachusetts Society will present papers on various topics.

Dr. Wm. H. Goddard, of Louisville, Ky., died, of consumption, March 4, 1883. He was for fourteen years treasurer of the American Dental Association, and at the last meeting was elected its president.

COOKING AND PARASITES.

We have all been shocked by the extremely barbarous habit practiced in many parts of Europe, but fortunately hardly known in this country, of eating anything from the hog without cooking it thoroughly. It would be ignorance unpardonable in a Kaffir not to have heard of the half a dozen of parasites which migrate from the hog into man by means of the meat.

The February Independent Practitioner contains a very able article on this very same subject; but it is not only pork which is so very dangerous in an uncooked form. Anything which may come in contact with the dejections of animals harboring parasites is equally dangerous. The habit of eating lettuce and dandelion, "gathered by the roadside," and fertilized by all kinds of domestic animals, without washing them sufficiently or without cooking at all, is equally dangerous. Even the drinking water in many communities ought never to be used without having undergone ebullition. People drink ice water without questioning where ice or water come from, and a great many of the diseases occurring quite frequently here, but being rather rare in Europe where people drink no water at all, seem to us to be due to this fact.

In countries where they drink nothing but weak fermented liquors, malaria is almost unknown; while in countries where people, either from notion or because it is fashionable, drink nothing but water, with perhaps occasionally some raw spirit called gin or whisky, it is of very frequent occurrence. The great difference between the savage and the civilized man lies in the process of cooking, and many of our beverages, like tea, etc., are more humbugging devices, to make us swallow boiled water, than anything else. Never drink any suspicious water without boiling it.

GUESSING.

It *is* a little like *guessing*, the attempt to estimate the weight of the "nascent" beast that even Dr. Watt cannot find. "Tracks," if even lifted by the "ears" and "tail" to the opposite end of the board, do not balance a very large pile of stones, to be sure. But how wonderfully fast their even *imaginary* weight does "peter out," as the hypothetical process is repeated. It 's this "petering-out" process that counts, Dr., and not the first weighing. "And this journal *guesses* that" Dr. W. sees where the "shoe pinches."

"I am working hard," said to his teacher one of his pupils, the other day. "How much do you work?" "I worked seven hours yesterday." "Is that all?" "Is that not enough to ruin one's health?" "No, and ever no. Yes, if you commence with seven hours' hard work you will learn nothing, you will break down in a few weeks; but if you commence properly, with a few hours, you will find that ten hours of mental work, kept up for ten months in a year, will not hurt you. Once I was in a school where all nationalities were very well represented. In different respects they ranked as follows: The most intelligent were the Englishmen; next came the Northern Germans, next the Austrians and Southern Germans, then the Russians, then the Americans (some twenty-five pupils), then came a great gap, after which followed the French, Italians and Spaniards, in the order named. But when it came to work, there was no dispute. First of all stood the Northern Germans, next the Southern Germans, next the Austrians, then came a very great gap, after which followed the Americans, then the English, the Russians, the Spaniards, and, last of all, the Italians and French. "But what were the results?" There can be no doubt. In matter of learning, there stood highest the Germans and Austrians; next came the English and Russians; then came a very marked gap, after which came the Americans, followed by a very great gap which was closed up by the Italians, Spaniards and French, in the order named. At the bottom of the scale were the French, who were the most ignorant, conceited and incapable. The Americans were about in the middle. "How did they stand in regard to bodily development?" The best developed and handsomest youths were the Englishmen; next came the Americans, next the Northern Germans, next the Austrians, then the Russians, then came a great gap, closed by the Southern Germans, the French, Italians and Spaniards. "Who spent the most money, and in the most foolish manner?" The Americans and English; next came the Spaniards, next the Italians, then the French, then the Russians, then the Austrians, and the stingiest of all were the Northern Germans. The facility of spending money was almost in inverse ratio of the learning capacity of the boys. Only the superior intelligence saved the Americans and English from the wretched results attained by the French and Italians. "Who were the most orderly and best behaved?" The Americans and English in the school-room, the Germans and Austrians outside of the school-room, while the French and Italians had very much of Darwin's missing link outside the school-room as well as inside.

PYORRHŒA ALVEOLARIS.

Our readers will, we think, find it profitable to spend an evening in the study of our first article, "Pyorrhœa Alveolaris," by Adolph Witzel, Germany. We copy the article, almost entire, from the British Journal of Dental Science, omitting necessarily some of the cuts in the original, which are comparatively unimportant.

We are confident that a large number of our most careful and experienced operators feel that something more than mere *surgical* treatment is required in very many cases of this disease, in order that permanent results of a favorable character may be realized. We also know that some of our best men get results by following the surgical with an *intelligent antiseptic* treatment, never before obtained by other methods. We do not consider the Witzel method of treating this disease as antagonistic to the Riggs method, but, rather, as supplemental to it, at least in many cases; and our own experience is sufficient evidence that this supplemental antiseptic treatment is as necessary to a complete cure as the surgical.

But here, as elsewhere, the operator needs to thoroughly understand what is meant by the septic condition and antiseptic treatment, etc. Low organisms, gentlemen, have more to do with all the varied diseases that the dentist is called upon to treat than has been hitherto generally supposed, or even suspected; and no dentist can be considered as at all abreast with the times unless he understands therapeutics as related to septicism. Lacking this, he not only needs to "read up," in a general way, on this subject but, more than that, he wants to thoroughly *assimilate* principles or fundamental truths relating thereto.

It seems to us that the article in the April Number of the *Items of Interest*—"Separating the Teeth," by Dr. L. D. Shepard, of Boston, has a *surprisingly* familiar appearance. We think that we have seen it before, somewhere, Mr. Editor.

."In the genuine 'white decay,' he"—the dentist—"cannot be too thorough and careful with his antiseptic treatment."—*Dr. Watt in the April No. of the Ohio State Journal.*

Well! Well!

Dentist Bernhardt Herschenröder, in Hamburg, had a case before court worth relating because of showing a law point in Germany. A child was sent to him because of toothache. The dentist was feeling with his finger in the mouth of the child; as it pained the boy, he bit it. The dentist at that cuffed his ear. The result of these mutual proceedings in both parties were visible after eight days. But the court was against the dentist, and for the boy, who had done the biting. The dentist had to pay seven dollars fine.

OPERATING TABLE AND LABORATORY.

ROBINSON'S FIBROUS FOIL.

It would seem that the demand for *varieties* of filling materials, at least, would soon be filled, though perhaps we ought not to look for rest in this direction till the grand *Ideal* filling material is discovered. As long as the search for the *Ideal* continues, there will doubtless be the many, at first promising, but soon proving anything but the long sought, placed on the market.

Though the *Fibrous Foil* is not claimed to be the *Ideal*, we most sincerely believe it has merit, and to so great an extent that it will *force its way to the operating case* and into many a tooth. We have given it a trial in quite a good many cases, and, on becoming accustomed to working it, are much pleased. Gold welds to it readily, and in those cases of teeth with frail walls, when gold properly condensed would endanger fracture, this being so much more plastic, can be used with safety, and the surface thinly covered with gold, thus obtaining the excellencies of each. In obscure cavities, it of course need not necessarily be overlaid with gold.

We have found in our own practice that where it is desired to overlay with gold, it is best to fill the cavity *completely* with the fibrous foil, then with files or scrapers finish down to but a trifle less than the contour desired when finished; then, with a fine sharp excavator, scratch up the surface. With the first layer of gold, use moderately coarse and sharply serrated points as packers, after which smooth points may be used. We prefer that the felt should come to the *very margin* of the cavity, feeling that this will insure greater safety (both as to leakage and fracture) than to make the weld *inside* the margin.

As a lining for rubber plates, we have given the material no trial. A specimen plate looks quite nicely, and we feel assured, from its appearance, it must be more healthful in contact with the mouth than the plain rubber. We can commend it as a filling material, at least, as well worthy an earnest trial.

The London Medical Record concludes from Prof. Koch's experiments that the only certain disinfectants are chlorine, bromine and corrosive sublimate. Solutions of one part of the latter to 1,000 parts of water will kill spores in ten minutes, while a solution of one in 15,000 is strong enough to arrest the power of development in micro-organisms.

INFLUENCE OF MIND OVER BODY.

BY C. J. B. WALLIS, L. D. S., ENGLAND.

Mr. Stephenson's case—"Electricity and Dentistry"—mentioned in the last number of the Record, reminds me of a similar case I had sometime ago, but with N. O. gas, instead of the electric current. A lady called and wished me to remove a painful upper molar under gas. The gas apparatus was arranged, the inhaler adjusted, and the gas turned on; in a second or two the patient breathed deeply, and her eyes, very widely open, were fixedly gazing on the ceiling. After the patient had inhaled a very large quantity of gas, as I thought, without any decided effect upon the sensitiveness of the eye or the beating of the pulse, I decided to operate without speaking to the patient, for she was evidently not under the influence of the gas, and in due course removed the tooth. The patient immediately leaned forward, without the least excitement or show of pain, and washed the mouth. The whole conduct of the patient rather puzzled me, so that I was curious to know her experience, and on inquiry she informed me that the "gas was not at all unpleasant, as she expected it would be," and that she "felt just a little pain at the last moment, but nothing worth mentioning." She paid the fee, and left apparently well pleased with the success of the operation.

Now, as I felt perfectly certain that the patient was conscious the whole time, I came to the conclusion that there was something wrong with the gas; therefore I took the earliest opportunity, after she had left, to examine my apparatus, and was astonished, as well as amused, to find that I had omitted to connect the tubing with the gas bottles, so that it was impossible that the patient could have inhaled any more gas than I had myself inhaled at the time from the gas circulating in the room.

This case not only bears upon the question of the influence of the mind over the body, but also bears out the theory that deep and rapid inspirations produce a certain amount of anæsthesia.—*The Dental Record.*

We have in several instances succeeded in extracting a single tooth with almost no, if any, pain to the patient, by preceding the operation with deep and rapid inspirations for about two minutes. It is not a success in all cases, of course, and too much must not be expected. If, at the same time, the patient can be induced to bring the muscles and nerves of the body into a vigorous rigid tension, it will aid in producing the apparent anæsthetic condition.—ED.

BAD TEETH AND NERVOUS TROUBLES.

The following we quote from a late issue of the *New York Times*. It is an article of much interest, and should be read with care. It seems to us, however, to be liable to convey an erroneous impression, at least upon a hasty reading. Our anti-amalgam friends want to "think twice" before they claim it as a "score" on their side of the question. There is more in it than merely amalgam. It is to be regretted that these cases were not reported by some one competent to give us an exact and full statement of all the conditions of the parts locally affected. There can be no doubt that diseased teeth cause more trouble of this character than is generally supposed, even by dentists:

"It appears not to be generally understood even among cultivated people, nevertheless, although the fact has been dwelt upon with emphasis by the best medical authorities, that the presence of carious, crowded or asymmetrical teeth in the human mouth is the progenitor of a long train of nervous diseases, comprising not only facial neuralgia and its concomitant troubles, but diseases of the ear, inflammatory as well as functional, eventuating often in partial loss of hearing, defects of vision, naso-pharyngeal catarrh, and other tormenting maladies. One of our acutest and most successful specialists in the treatment of nervous diseases has become so fully convinced by long experience of the part played by defective teeth in the development, not of neuralgia only, but even of the more obscure neuroses, that he always insists, as a condition precedent to the acceptance of the case, that a thorough examination of the cavity of the mouth shall be undertaken by a competent dentist, for, he says, not only may a single diseased tooth result in persistent nervous disturbance, but diseases of the brain, decay or perversion of the mental faculties, even epilepsy and tetatnic spasms often have their starting-point in dental irritations; and he has observed cases in which, while laying the foundation for a long train of nervous troubles, the irritated organ itself gave no sign, either by local pain or vague discomfort, of the agency it was constantly exerting to produce serious disturbance at some distant point. In common with most aural surgeons, Dr. Sexton has long since adopted the practice of examining the teeth of every patient brought to him for treatment of ear trouble, particularly of partial deafness and of general irritation of the organ; and, speaking the other day of the large number of pupils from the public schools who attended the aural clinics at the hospital with which he is connected, 'it is rare,' he said, 'to find a

single patient in whose case dental irritation is not to be considered among the prominent causative factors.'

"But is it possible that *mental* decay should have its starting-point in dental irritation? This question is answered by a remarkable case narrated by a prominent dentist in this city—Dr. Smith, of No. 50 East Twenty-third street. The patient was a gentleman from Boston, about 35 years of age, the senior partner in a prosperous dry-goods house. Several years previous to the date when he came under the care of Dr. Smith his general health began to fail inexplicably. Medical advice, tonics and stimulants were equally without avail. The trouble was diagnosticated as nervous exhaustion; he was advised to pass a year in Europe; did so, and returned in no way improved. A constant victim to neuralgia and sleeplessness, his friends soon noticed with anxiety the development of symptoms of cerebral disturbance. Fits of mental aberration followed, and finally symptoms of progressive dementia set in. The best physicians in Boston and New York were alike baffled by the obscure and inexplicable features of the case. The patient failed gradually, but steadily, in mind as well as body, and in both equally. Accident, or rather the occasion to have a defective tooth repaired, brought the patient in contact with the dentist, who discovered, in addition to the services required, that in two teeth that had been filled with amalgam some years before, decay had set in beneath the plugs. The latter were accordingly removed, the cavities cleansed, and a filling of gold-foil was substituted in each case. Strange to say, from the date of the removal of these plugs, the symptoms of mental decay began to disappear, the physical condition of the patient rapidly improved, and in a few weeks, without further medical interference, he was a well man and capable of attending to business. It is a curious fact that neither of the two teeth which were responsible for the train of nervous and cerebral disasters wherewith this gentleman had suffered for years had ever given the least local trouble since it was filled. Whether the amalgam acted as a poison upon the delicate nerve bud beneath, or whether direct pressure upon the nerve was the cause of the irritation, medical science was incompetent to decide, but it is an assured fact that the progressive *mental* decay had its starting-point in the two minute nervous filaments connecting these organs with the brain, and there is no doubt that the case would have terminated in dementia if the amalgam plugs had not been removed and the cavities properly filled.

"Another case—that of a gentleman whose name has since become

familiar in literature—will serve to point the moral of the preceding. At the age of 18, his mouth being in other respects healthy, this gentleman had one of the large double teeth of the lower jaw plugged with amalgam by a country dentist. The tooth blackened, but no local inconvenience followed. A few days after the operation he was prostrated with what his physician described as nervous fever, high temperature and persistent delirium being among the prominent symptoms. Dating from this fever, and occurring with annual regularity nearly on the anniversary of the first attack, for the next ten years the patient was tormented, usually for about five weeks, with the most fearful neuralgia of the right eye and the right temple, which his physician predicted would finally end in loss of vision and possibly in brain trouble. At length, in the torment of a paroxysm, his attendant being absent, he threw himself one day upon the sofa, and placed over his nostrils a napkin saturated with sulphuric ether. As the anæsthetic took effect and the pain subsided in the eye and temporal regions, he was surprised by a curious sensation as of a thread of pain running along the jaw and ending in the tooth which had been filled years before, but had never given the least hint of local discontent. On relating the experience to his physician, the wary practitioner was sensible to advise the removal of the plug and refilling of the tooth. This was done. The neuralgia vanished in an hour and, though several years have elapsed since then, it has never returned."

BRUSHING THE GUMS.

In our article in this number by Adolph Witzel, attention is called to the importance of brushing the gums with a soft brush and carbolized "spirit," or water, as a prophylaxis. We are confident that too little attention has been given to this matter. That the brush should be a soft one, is self-evident—softer than those in general use for cleansing the teeth. If the concretions about the necks of the teeth are to be considered as the cause, or favorable conditions to the development of pyorrhœa alveolaris, the removal of such concretions is certainly in the line of prophylactic treatment, and cannot be too carefully insisted upon. That this collection of mucus and food substances about the margins of the gums is productive of germ development to a high degree, there can be no doubt—to antagonize which the use of carbolized water is very efficient, and should not be left out of the dental toilet.

In marked cases of predisposition to gum disease we have, for

some time used, with very favorable results, a solution of glycerine, carbolic acid and eucalyptol, flavored with the oil of winter-green—not only brushing the teeth and gums with this solution, but afterwards thoroughly rinsing the mouth with the same. Also, in cases of "rapid decay," especially with our young patients, we prescribe a similar wash to be used daily. We *think* good results follow.

CATCHING THE TOOTHACHE.

A gentleman once was in the room with a lady who was having a severe toothache, and had suffered long with it, when all at once he sprang to his feet and clutched his face and exclaimed that he had a fearful toothache. At the same moment the lady told him hers had stopped aching. The lady's tooth troubled no more, but the gentleman got no relief until he had his tooth extracted.

A. J. P.

SOCIETIES.

VERMONT DENTAL SOCIETY.

The seventh annual meeting of this society met in the parlors of the Bates House, Rutland, March 21, and closed its work on the 23d, President S. D. Hodge, of Burlington, in the chair. The session of Wednesday, the 21st, was occupied mainly by the reception of reports of various committees, among which was that of "Legislation," who report the enactment of a law regulating the practice of dentistry in the State, and also articles of association, which constitute the society an incorporate body. The balance of the evening was devoted to a paper on "Bacteria," which was presented by C. S. Boynton, M. D., of Brandon, Vt. This paper was by vote of the society returned to the author to continue some experiments, with the request that it be extended and, when completed, published by the society for distribution.

Below we give an abstract of the paper.

The essayist began by saying that, in coming before them at the invitation of their executive committee, to present a paper on the subject of "Bacteria," he came not in the interest of any particular theory or hobby; that, in his description of the characteristics of bacteria, he should make no pretensions to originality, the object be-

ing to give the life-history of these organisms as far as known to the present writing; to explain natural facts in simple and unmistakable language, clearly defining the position they now occupy in the scientific world; and also to place before them as clearly as may be the part they now (in the opinion of many of the dental profession) play in the production of dental caries.

After speaking of the interest attached to the study of these organisms as touching the most diverse problems, related as it is to the theory of spontaneous generation, to that of the fermentation, to the pathogeny and therapeutics of a great number of virulent and contagious affections, and in a more general manner to all the unknown, which, notwithstanding the efforts of modern science, still surrounds the origin of life and its preservation, he called attention to the fact that organized material cannot again enter the general current until it has undergone new transformation, which transformation, without contradiction, is accompanied by the development of bacteria, and—strong proof seems to be in favor of saying—produced by them. And it may be said that, because of them, the continuation of life is possible on the surface of the globe.

Then followed a description of their botanical characteristics (for Dr. B. claims for them a plant origin), together with their present classification. He referred briefly to the discoveries of Leeuwenhock, Devaine, Hoffman, Hallier, Cohn, Pasteur, and others. Bacteria, after migrating from one kingdom to another, and being "kicked" out by one observer from both vegetal and animal, as not belonging to living beings, at last are classed by Sachs as "Thalophytes," a group formed by uniting the algæ and fungi, in which he establishes two parallel series, one possessing forms containing chlorophyll, the other destitute of it.

They multiply in moist air wherever they can find decaying matter; are killed by a temperature of 140° F., only the temperature must be continued long enough to make sure that the whole mass has been penetrated and not a single bacterium has escaped destruction.

If the bacteria in a solution are killed and the introduction of new germs prevented, the liquid remains unchanged, putrefaction never takes place.

Thus it is concluded, from experiments often repeated and always with the same results, that putrefaction does not take place if no bacteria are present; and, on the other hand, the multiplication of them ceases as soon as the substances capable of producing putrefaction are destroyed.

Therefore, bacteria are not the chance companions, but rather the cause, of putrefaction, which is defined to be "a chemical process excited by bacteria." Death does not cause putrefaction but rather it is caused by the life of these invisible organisms.

As soon as Leeuwenhock made known his first observations upon these invisible organisms in putrid rain water, many of the doctors of that day began immediately promulgating the hypothesis: That the frightful enigma of epidemic diseases was explained through the wafting of microscopical diseased germs. And not only the "doctors," but the "dentists" have had from time to time slight attacks of what may be termed "Bacteria-mania."

The discovery of these low forms of life in the mouth is not of modern origin, as can be seen by an extract from the writings of Leeuwenhock, in 1682. If he has not named them, it is easy to assure oneself, by the description he has given of the form and movements, that the organisms observed by him are truly bacteria. When we consider that this description was written over two hundred years ago, and at a time when microscopy was little known, we feel that the words of holy writ are true: "There is no new thing under the sun."

Dr. B. here gave the circumstances which turned his attention to the subject of dental caries as produced by bacteria (by a notice in the Boston Globe of December 16, 1881, of an interview with Dr. F. Y. Clark by a New York reporter). After giving the contents of a note from Dr. Clark, he said: "Here we find two landmarks just two hundred years apart—1682 and 1882; let us turn back and see what has been done by other investigators between these dates."

The investigations of Alex Beneditti Musitamus, Peter Fanchard, John Hunter, Ficinus, Klencke, J. Tomes, Neumann, Magitot, Leber and Rottenstein, were in turn noticed, and coming to the present time mention was made of the labors of Drs. F. Y. Clark, A. Weil, Arthur S. Underwood, W. J. Milles, W. D. Miller, C. T. Stockwell, and many unknown writers in the recent dental journals. While the last-mentioned gentlemen might not agree on all points touching the rôle of bacteria in caries, they probably could agree with Miller when he says: "In my opinion there is not a single case of caries in which micro-organisms do not play some part, and that in the most cases they play a very important part."

"After going over the literature of the subject, the investigator or seeker for truth finds himself in the position of the student who entered the old hall of 'Sorbonne,' in company with the Genevian

Professor Casaubon. 'Here,' said the student proudly, 'is a building in which men have disputed for four hundred years.' 'And,' asked Casaubon, 'What has been settled?'

There is a significance in the question of the old professor. No question of this kind can be settled by a war of words. Patient, continued research, in which all who can should take a part, will bring in time better results and place the profession on a higher plane."

Reference was made to the questions propounded by Dr. Frank Abbott to Dr. F. Y. Clark, as reported in the March number of the N. E. Journal of Dentistry, as embodying the reasons why he cannot accept the germ theory as correct.

In all of the discussions that have appeared in the journals since the germ theory of dental caries has been brought forward, it has been noticed that the opponents of the theory, and sometimes the supporters, come to the work without any definite knowledge of the life history of bacteria; and this is the reason why so much space has been given this part of the subject in this paper, believing that in order to find what these organisms are responsible for, we must first find their true place and purpose in the economy of nature.

People are found talking of bacteria of the "mouth" and "teeth" as though they were a genus by themselves—something especially created for the sole purpose of tormenting the patient and bothering the dentist, and endowed with no other object in life but to bore, break down and destroy our teeth, from a spirit of innate wickedness with which they are possessed.

If these persons had made themselves familiar with the biological history of bacteria, as they exist elsewhere, following carefully the rôle they perform in the world of organized beings, many questions would remain unasked and the number of honest doubters would be less. We learn that the body in which life has been extinguished succumbs to dissolution in order that its material may become serviceable to new life.

"If there were no bacteria, the materials embodied in animals and plants of one generation would, after their decease, remain bound as the chemical combinations in the rocks; new life could not develop because there would be lack of body material. Since bacteria cause the dead body to come to the earth in rapid putrefaction, they alone cause the springing forth of new life, and therefore make the continuance of living creatures possible."

"The great bulk of plants derive their nourishment from inorganic

matter, elaborated by them from the crude materials in the soil, and stored up in their cells, as starch, diastase, chlorophyll, etc."

Animals depend, on the other hand, in as great a degree upon materials elaborated by vegetal chemism. They depend mainly upon the starch and gluten of plants in one form or another. Suppose this double drain on organic nature to be continued with no return. How long would life exist?

The farmers are learning a lesson at this late day that they cannot demand food from the soil without rendering some return. The fertilizers with which they enrich their worn-out acres are nothing more than materials which, by the aid of bacteria, have completed the circle of nutrition. "Material taken from the earth in the first place forms plant tissue, this in turn is appropriated by the animal economy, and these animals yield themselves up at last to the soil which takes back its own."

Here we find the life work of bacteria, placed by nature everywhere, so they may well be called omnipresent, nature's sentinels on the picket line of life, ever watchful to execute their mission whenever and wherever natural causes make way for them. But with all their power and eagerness to lay hold of organized material, there is placed an impassable barrier between them and organic life; the principle of vitality holds them in check. As long as the organized material with which they are associated is possessed with its normal vital powers, so long will it be free from their ravages. Here is thought to be the true part which they play in the production of dental caries. There is a breaking down or lowering of the *vitality* of the structure, in whole or in part, and then bacteria begin their work. Much stress has been laid on the action of acids, but may not any disease that lowers the vital powers assist in bringing about this result? This part of the subject was illustrated by cases which would seem to prove that caries was of a complex nature, and that it would be useless to search for any one cause that could produce all these changes.

[The "Breaking down or lowering of the *vitality* of the structure" cannot be said to be *caries* but, rather, a *favorable condition to* caries; or a condition when bacteria may *successfully* attack the structure, at which point the processes of caries are set in motion. In other words, there is no *caries* until the *putrefactive* process is inaugurated by the agency of bacteria. The causes of the various *conditions favorable to* caries may be, and are, "complex;" but any one or all of these do not alone constitute caries proper; they stop short of it.

So far, no *caries* exist. The structure or tissue may be even dead, but not carious. The cause of *caries* has not yet appeared on the scene of action. Admit the bacteria, and then you have caries as a natural result.—ED.]

In conclusion, he said: "We leave the subject with you, hoping that enough has been said to induce you to follow out this inquiry in the spirit of the motto of the Cosmos—'Observe, compare, reflect, record.' *Observe* carefully what is going on each day before your eyes. *Compare* these observations with others working in the same field. *Reflect* upon the data obtained, and learn if possible the lessons taught, remembering that 'He who never walks save where he sees men's tracks, makes no discoveries.' And lastly keep a *record* of each day's progress, as it is by these written records that the march of progress is made universal."

A vote of thanks was extended to the doctor for his paper and a general discussion followed, evincing much interest in the subject.

The session of Thursday morning was occupied by the reception of new members—thirteen in all—the consideration of the subject of "Dental Caries," and its treatment, and in listening to a report by Dr. Lewis, of the National Examiners' Convention recently held at Lexington, Ky.

The afternoon session was opened by the reading of a paper on "Dental Education," by Dr. S. J. Andres, of Montreal. The concluding clause of this paper gives expression to the hope that the day is near "when the societies of the different States will fraternize and have, as far as possible, a uniform law governing them in regard to the qualifications to be demanded of the students as well as the course of examinations they will give. They will then be in a position to recognize and accept the licenses granted by each society and admit to practice the persons possessing them."

The treatment of alveolar abscesses was presented by Drs. Gilmore and Campbell, and Dr. Wellington explained his method of filling devitalized teeth, after which Dr. S. D. Hodge, the president, read the "annual address."

At the evening session Drs. Hodge and Chase explained the principle of the Coffin method of regulating teeth, Drs. Boynton and Wellington were elected to honorary membership, and a collation followed.

On Friday morning the following officers were elected and installed for the ensuing year: President, Dr. O. P. Forbush, Montpelier;

Vice-Presidents, Drs. R. M. Chase and W. H. Wright; Secretary, Dr. T. Mound, Rutland; Treasurer, Dr. James Lewis; Executive Committee, Drs. G. H. Swift, Manchester, W. H. Munsill, C. F. Lewis.

Voted, to hold the next meeting at St. Albans.

AMERICAN MEDICAL ASSOCIATION.

Section on Dental and Oral Surgery.

The thirty-fourth annual session will be held in Cleveland, Ohio, commencing Tuesday, June 5, 1883, at 11 A. M., and continuing four days.

"The delegates shall receive their appointments from permanently organized State Medical Societies and such County and District Medical Societies as are recognized *by representation in their respective State Societies* and from the Medical department of the Army and Navy, and the Marine Hospital Service of the United States."

All medical men of the regular school practicing the specialty of Dental Surgery are most cordially invited to procure credentials from their local medical societies and join us at Cleveland. Railroads furnish reduced rates to all members wishing to attend.

"A member desiring to read a paper before any section, should forward the paper or its title (in length not to exceed twenty minutes in reading) to the chairman of the committee of arrangements, at least one month before the meeting."—(By-Law.)

TRUMAN W. BROPHY, *Secretary*
Section on Dental and Oral Surgery, Am. Med. Association.

ALABAMA DENTAL ASSOCIATION.

The fifteenth annual meeting of the Alabama Dental Association was held in Montgomery, Ala., April 10, 11, and 12, 1883, at McDonald's Opera House—Dr. J. C. Johnston, President, in the chair. The following officers were elected for the ensuing year:

Dr. E. S. Chisholm, President.
Dr. R. U. DuBois, 1st Vice-President
Dr. W. R. McWilliams, 2nd Vice-President.
D. E. Wagner, Secretary.
Dr. G. M. Rousseau, Treasurer.

Drs. E. S. Chisholm, E. Wagner, S. Ramba, W. D. Dunlap and A. Eubank, Executive Committee.

Drs. W. R. McWilliams, A. Eubank, J. C. Johnston, W. B. Stewart, J. G. McAuley, State Board of Dental Examiners.

E. WAGNER, D. D. S., *Sec'y*,
Montgomery, Ala.

The Dental Society of the State of New York will hold its fifteenth annual meeting at Albany, Wednesday and Thursday, May 9th and 10th, 1883.

The meeting will be called to order at 10 o'clock, A. M., Wednesday, in Geological Hall, State street, and the sessions continued until all business is finished.

Members are particularly urged to come prepared to report "Incidents of Office practice," to which a portion of each session will be devoted, while those having voluntary essays for presentation should communicate with H. G. Mirick, 156 Clinton street, Brooklyn, as early as possible previous to the meeting.

Persons desiring to exhibit new appliances, materials, goods, etc., should notify W. F. Winne, of Albany, who will provide the necessary accommodations.

Members of kindred organizations are cordially invited to attend this meeting and take part in the proceedings.

The Board of Censors will meet on Tuesday, May 8th, at 10 o'clock A. M., in Geological Hall, for the examination of candidates for the degree of "Master of Dental Surgery" (M. D. S.), but no examination will be held during the meeting of the Society.

ORDER OF BUSINESS.

1. Calling the Roll.
2. Reading the Minutes of the last Meeting.
3. Report of the Committee of Arrangements.
4. Reception of Members and payment of Dues.
5. President's Address.
6. Report of Treasurer.
7. Report of Correspondent.
8. Report of Censors.
9. Report of Committee on By-Laws.
10. Report of Committee on Ethics.
11. Report of Committee on Publication.
12. Report of Committee on Business.
13. Reports of Special Committees.
14. Reports of District Societies.
15. Reports of Dental Colleges.
16. Reading of Essays and Discussions.
17. Miscellaneous and unfinished Business.
18. Election of Officers.
19. Appointment of Committees.
20. Adjournment.

PROGRAMME.

Address—President L. S. Straw, Newburgh.

Microscopical Demonstration, with Remarks Descriptive of Objects Shown—Prof. Wm. Hailes, Jr., Albany Medical College.

DISSERTATIONS AND DISCUSSIONS.

A new System of Artificial Crowns for all Teeth and Roots, combining Great Strength with Ease of Application, applied over Living or Dead Pulps—E. Parmly Brown, Flushing.

Incidents of Office Practice—Members and Privileged Visitors.

Professional Attainments and Popular Needs—S. B. Palmer, Syracuse.

Disease of the Antrum—Frank Abbott, New York.

Cleft Palate—A. P. Southwick, Buffalo.

Artificial Crowns—N. W. Kingsley, New York.

Disease—W. H. Atkinson, New York.

Longitudinal Grooves in Teeth—C. E. Francis, New York.

Certain Microscopical Elements in Pulpless and Gum-Denuded Teeth, in their Relations to the Filling of Roots and the Re-Attachment of the Gum-Tissue—J. Edw. Line, Rochester.

OFFICERS.

President—L. S. Straw, Newburgh.
Vice-President—Frank French, Rochester.
Treasurer—A. H. Brockway, Brooklyn.
Secretary—J. Edw. Line, Rochester.
Correspondent—W. H. Atkinson, New York.

DENTAL DEPARTMENT OF THE UNIVERSITY OF MARYLAND.

The first annual commencement of the Dental Department of the University of Maryland took place at the Academy of Music, Baltimore, on Thursday, March 15, 1883.

Reading of the mandamus and announcement of graduates by the Dean, Ferdinand J. S. Gorgas, M. D., D. D. S. The address was delivered by Hon. John V. L. Findlay.

The number of matriculates for the session was sixty-six. The degree of D. D. S. was conferred on the following gentlemen, thirty-four in number, by Hon. S. Teackle Wallis, LL. D., Provost of the university:

NAME.	RESIDENCE.
J. Hardin Baldwin,	Kentucky.
F. Austin Banks,	Michigan.
Barton B. Breeden,	S. Carolina.
Paul Campbell,	New York.
Frank G. Conklin,	New York.
Joseph W. Curtis,	New Jersey.
Erastus S. Dashiell,	Maryland.
Newton W. Denton,	Virginia.
R. Delamer Dodson,	Pennsylvania.
John F. Garrett,	North Carolina.
Godfrey J. Grewsfler,	Maryland.
George W. Hotaling,	New York.
R. Arthur Hungerford,	Maryland.
Atwell T. Jarrett,	Virginia.
Geo. Wilfred Le Duke,	Massachuset's
Chas. T. Lindsey,	Virginia.
Frank Maphis,	Virginia.

NAME.	RESIDENCE.
Wattie B. McGirt,	South Carolina.
J. Edwin Miller,	Minnesota.
Eli H. Neiman,	Pennsylvania.
A. Lee Penuel,	Maryland.
Walter W. Rowe,	Pennsylvania.
Hippolyte C. Salles,	Louisiana.
Carlos N. Sanchez,	Cuba.
C. Julian Smith,	South Carolina.
Walter O. Smith,	Virginia.
Myron W. Snyder,	New York.
Walter Stuart,	Kentucky.
Newton Addison Teague,	S. Carolina
Norman B. Tifton,	Louisiana.
J. Everett Toombs,	Massachusetts.
Geo. Andreas Volck,	Maryland.
Fred Allen Weaver,	Massachusetts.
Aug. F. L. Weitfeldt,	Germany.

No. of matriculates for the session, 66—all of whom were dental students, and not matriculates of the medical department. No. of graduates, 34—all of whom, without a single exception, attended the entire course.

The University Prize—a gold medal—was awarded to John F. Garrett of North Carolina—J. Edwin Miller of Minnesota receiving "honorable mention."

The first S. S. White Prize was awarded to F. Austin Banks of Michigan—F. G. Conklin of New York and J. Everett Toombs of Massachusetts receiving "honorable mention."

The Snowden and Cowman Prize was awarded to G. A. Volck of Maryland.

The second S. S. White Prize was awarded to Walter Stuart of Kentucky.

The Wilkerson Prize was awarded to Myron W. Snyder of New York.

The Genese Prize was awarded to Eli H. Neiman of Pennsylvania.

The Dental Register Prize was awarded to Frank G. Conklin of New York.

The Southern Dental Journal Prize was awarded to Walter W. Rowe of Pennsylvania.

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